AMENDMENT TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1.-39. (Cancelled)

40. (Previously Presented) A method of detecting motion in nanoscale structures, comprising:

providing a molecular structure having a rotating arm;

attaching a nanoparticle to the rotating arm of the molecular structure so that the nanoparticle rotates with the rotating arm of the molecular structure, wherein the nanoparticle has a first surface and a second surface, and wherein the first surface has greater area than the second surface;

exposing a light to the nanoparticle, wherein a first surface of the nanoparticle scatters a first polarized wavelength of the light when the nanoparticle is in a first position and a second surface of the nanoparticle scatters a second polarized wavelength of the light when the nanoparticle is in a second position;

filtering the first and second wavelengths of the light through a polarizing filter to detect rotational motion by observing alternating first and second wavelengths of the light.

41. (Previously Presented) The method of Claim 40 wherein the nanoparticle is rod-shaped.

42. (Previously Presented) The method of Claim 41 wherein the nanoparticle is a gold nanorod.

43. (Previously Presented) The method of Claim 42 wherein the first polarized wavelength of the light is longer than the second polarized wavelength of the light.

44. (Previously Presented) The method of Claim 43 wherein the first polarized wavelength of the light is red light and the second polarized wavelength of the light is green light.

45. (Previously Presented) The method of Claim 40 wherein the molecular structure is an F1-ATPase enzyme.

46. (Previously Presented) The method of Claim 40 further including the step of disposing a detection DNA strand between the nanoparticle and the molecular structure, wherein the detection DNA strand hybridizes with a target DNA strand, if the target DNA strand matches the detection DNA strand, to form a structural link between the molecular structure and the nanoparticle.

47. (Previously Presented) A method of detecting motion in nanoscale structures comprising:

attaching a nanoparticle to a rotating portion of a molecular structure, wherein the nanoparticle has a first surface and a second surface, and wherein the first surface has greater area than the second surface;

exposing a light to a first surface of the nanoparticle to scatter a first polarized wavelength of the light;

exposing a light to a second surface of the nanoparticle to scatter a second polarized wavelength of the light; and

filtering the first and second wavelengths of the light using a polarizing filter to detect the rotational motion by observing the first and second wavelengths of the light.

48. (Previously Presented) The method of Claim 47 wherein the nanoparticle is rod-shaped.

49. (Previously Presented) The method of Claim 48 wherein the nanoparticle is a gold nanorod.

50. (Previously Presented) The method of Claim 49 wherein the first polarized wavelength of the light is longer than the second polarized wavelength of the light.

51. (Previously Presented) The method of Claim 50 wherein the first polarized wavelength of the light is red light and the second polarized wavelength of the light is green light.

52. (Previously Presented) The method of Claim 47 wherein the molecular structure is an F1-ATPase enzyme.

53. (Previously Presented) The method of Claim 47 further including the step of disposing a detection DNA strand between the nanoparticle and the molecular structure, wherein the detection DNA strand hybridizes with a target DNA strand, if the target DNA strand matches the detection DNA strand, to form a structural link between the molecular structure and the nanoparticle.

54. (Previously Presented) A method of detecting motion, comprising:

attaching an anisotropic nanoparticle to a rotating portion of a base structure;

exposing a light to the anisotropic nanoparticle to scatter first polarized and second polarized wavelengths of the light to detect the rotation motion by observing the first polarized and second polarized wavelengths of the light.

55. (Previously Presented) The method of Claim 54 wherein the anisotropic nanoparticle is rod-shaped.

56. (Previously Presented) The method of Claim 55 wherein the anisotropic nanoparticle is a gold nanorod.

57. (Previously Presented) The method of Claim 55 wherein the anisotropic nanoparticle has a first surface and a second surface, and wherein the first surface has greater area than the second surface.

58. (Previously Presented) The method of Claim 55 wherein the first polarized wavelength of the light is longer than the second polarized wavelength of the light.

59. (Previously Presented) The method of Claim 58 wherein the first polarized wavelength of the light is red light and the second polarized wavelength of the light is green light.

60. (New) A method of detecting motion in nanoscale structures comprising:

providing a molecular structure having a rotatable arm;

attaching a nanoparticle having a first axis and a second axis to the rotatable arm of the molecular structure so that the nanoparticle rotates with the rotating arm of the molecular structure, the first axis of the nanoparticle having a greater length than the second axis;

disposing a detection DNA strand between the nanoparticle and the molecular structure, wherein the detection DNA strand hybridizes with a target DNA strand such that if the target DNA strand matches the detection DNA strand said rotatable arm will rotate, to form a structural link between the molecular structure and the nanoparticle;

providing white light from a fixed location;

altering a path of the white light from the fixed location to create an oblique angle with respect to the first axis and second axis of the nanoparticle;

exposing the white light from the altered path onto the nanoparticle, the first axis of the nanoparticle scattering a first wavelength of the light when the nanoparticle is in a first position of rotational motion, the second axis of the nanoparticle scattering a second wavelength of the light when the nanoparticle is in a second position of rotational motion;

providing an iris which passes the first and second wavelengths of scattered light and blocks unscattered light;

providing a polarizing filter which is aligned only to the first and second wavelengths of the light wherein the polarizing filter blocks light not aligned with the filter;

processing the first and second wavelengths of light from the polarizing filter through optical equipment to separate the first and second wavelengths of light into first and second channels, respectively; and

detecting alternating first and second wavelengths by the absence of light between each alternating first and second wavelengths which indicates motion of the nanoparticle and the molecular structure.